

CAGLE'S MILL RESERVOIR
Owen and Putnam Counties
2006 Supplemental Walleye Stocking Evaluation

Dates of Survey: October 10, 16-19, and 30, 2006

Biologist: Jamie L. Smyth

Survey Objectives: Evaluate the stocking success of walleye at Cagle's Mill Reservoir.

Methods: Fish collection effort consisted of 3 h of DC night electrofishing and 14 standard gill net lifts. Walleye were measured to the nearest 0.1 in TL and weighed to the nearest 0.01 lb for fish up to 5.00 lbs, and to the nearest 0.25 lb for fish over 5.00 lbs. Scale samples and otoliths were collected for age and growth determination.

Summary: A total of 18 walleye was collected that weighed 56.78 lbs. The CPUE was 0.3/h and 1.2/gill net lift. Walleye ranged in length from 13.6 to 28.1 in and averaged 19.7 in.

The DFW criteria for walleye stocking success is the collection of at least seven YOY walleye/h of electrofishing. The 2006 walleye stocking was unsuccessful since no YOY walleye were collected during the fall evaluation. This is the first year that no YOY walleye were collected since stocking evaluations began in 1990. Year class strength for YOY has fluctuated at Cagle's Mill, and catch rates have been as high as 176.7/h (Table 1). The average CPUE for YOY walleye in surveys from 1990 to 2006 is 42.6/h.

Collecting age 1 and older walleye with electrofishing gear has been challenging at Cagle's Mill. Only one walleye (19.3 in) was collected via electrofishing. The remaining 17 fish were caught with gill nets, which are more efficient at targeting age 1 and older walleye (Table 2). CPUE for walleye via gill nets was lower (1.2/lift) than in 2004 (3.4/lift) (Wisener 2006). Walleye ranged from age 1 through age 8. The predominant year class was age 3 which was no surprise since the 2003 fall walleye evaluation yielded a catch rate of 45.0 YOY/h (Keller 2004).

Young of year walleye stocking success in Cagle's Mill has been related to spring and summer water levels. During the week of the 2006 walleye fry stocking, the outflows at Cagle's

Mill were higher than normal (US Army Corps of Engineers 2007). Muddy water coupled with high outflows could have impacted walleye fry survival and contributed to the lack of YOY walleye seen during the survey.

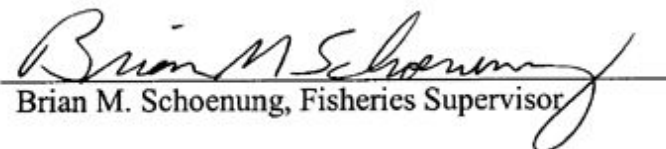
Prior to 2001, the stocking rate for walleye in Cagle's Mill had been 3,000 fry per acre (4.2 million). When growth began to slow, this rate was reduced to 2,000 fry per acre for a total release of 2.8 million annually (Keller 2001). Catch rates and growth for YOY walleye have typically increased when the reservoir has remained high throughout much of the growing season. An increase in water levels provides an array of food for the young fish as well as improved habitat to escape predation. The stocking rate of 2,000 walleye fry/acre, along with periodic high water years, should promote improved walleye growth and reduced competition. The next fall evaluation for walleye is scheduled for 2008 and the next fish community evaluation is slated for 2009.

LITERATURE CITED

- Keller, D. C. 2001. Evaluation of the Fish Community and Walleye Stockings in Cagle's Mill Reservoir, 2000 Fish Management Report. Indiana Department of Natural Resources. Indianapolis, Indiana. 24pp.
- Keller, D.C. 2004. Cagle's Mill Reservoir Walleye Evaluation, 2003 Fish Management Report. Indiana Department of Natural Resources. Indianapolis, Indiana 4pp.
- US Army Corps of Engineers. 2007. US Army Corps of Engineers, Louisville District. Available: www.lrl.usace.army.mil (November 2007).
- Wisener, J.R. 2006. Evaluation of the Fish Community and Walleye Stockings in Cagle's Mill Reservoir, 2004 Fish Management Report. Indiana Department of Natural Resources. Indianapolis, Indiana. 26pp.

Submitted by: Jamie L. Smyth, Assistant Fisheries Biologist
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Approved by: J. Rhett Wisener, Fisheries Biologist

Approved by: 
Brian M. Schoenung, Fisheries Supervisor

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NUMBER, PERCENTAGE, WEIGHT, AND AGE OF WALLEYE									
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0	1	5.6	2.41	3
1.5					19.5	1	5.6	2.71	3
2.0					20.0				
2.5					20.5				
3.0					21.0	2	11.1	3.43	4
3.5					21.5	1	5.6	3.55	4
4.0					22.0	1	5.6	4.52	3
4.5					22.5				
5.0					23.0				
5.5					23.5				
6.0					24.0				
6.5					24.5				
7.0					25.0	1	5.6	7.00	5
7.5					25.5				
8.0					26.0	1	5.6	6.25	6
8.5					26.5				
9.0					27.0				
9.5					27.5				
10.0					28.0	1	5.6	8.75	8
10.5									
11.0									
11.5					TOTAL	18			
12.0									
12.5									
13.0									
13.5	1	5.6	0.82	2					
14.0									
14.5	1	5.6	1.02	1					
15.0	2	11.1	1.30	1,2					
15.5									
16.0	1	5.6	1.42	1					
16.5									
17.0									
17.5	1	5.6	1.81	3					
18.0									
18.5	3	16.7	2.35	2,3					
ELECTROFISHING CATCH		0.3 / hr		GILL NET CATCH	1.2 / lift		TRAP NET CATCH		NA

Species	YEAR CLASS	NUMBER OF FISH AGED	SIZE RANGE	BACK CALCULATED LENGTH (inches) AT EACH AGE							
				I	II	III	IV	V	VI	VII	VIII
Walleye Intercept=2.2	2005	3	14.7-16.1	10.2							
	2004	3	13.6-18.5	9.8	13.5						
	2003	6	17.6-22.4	10.9	15.3	18.3					
	2002	3	21.2-21.7	10.1	14.9	17.8	20.8				
	2001	1	25.2	11.5	17.8	21.8	23.6	24.7			

Mean Length at Capture

Walleye

Age	Number	Mean TL	Var	SE	Lo 95%CI	Up 95%CI
1	3	15.4	0.58	0.44	14.5	16.3
2	3	15.9	6.58	1.48	13.0	18.9
3	6	19.4	2.37	0.63	18.2	20.7
4	3	21.4	0.08	0.17	21.1	21.8
5	1	25.3	NA	NA	NA	NA
6	1	26.3	NA	NA	NA	NA
7						
8	1	28.3	NA	NA	NA	NA

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				I	II	III	IV	V
Walleye								
Intercept=2.2	2005	3	14.7-16.1	10.2				
	2004	3	13.6-18.5	9.8	13.5			
	2003	6	17.6-22.4	10.9	15.3	18.3		
	2002	3	21.2-21.7	10.1	14.9	17.8	20.8	
	2001	1	25.2	11.5	17.8	21.8	23.6	24.7

Table 1. DC electrofishing catch rates (fish/hour) of walleye by age collected during fall evaluations at Cagle's Mill Reservoir, 1990 to 2006.

<u>Year</u>	<u>Age</u>				
	<u>YOY</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4 and older</u>
1990	8.0	0.7	--	--	--
1991	6.2	0.2	0.2	--	--
1993	94.2	3.6	--	--	--
1994	8.8	3.6	0.8	--	0.2
1995	57.2	0.4	--	--	--
1996	176.7	9.0	--	--	--
1998	51.0	3.0	1.3	--	--
1999	38.5	0.8	1.0	--	--
2000	52.0	1.5	1.0	--	0.3
2002	2.0	0.5	--	0.3	--
2003	45.0	--	0.7	0.3	--
2004	13.7	2.9	--	0.3	--
2006	--	--	--	0.3	--
Average	42.6	2.0	0.4	0.1	< 0.1

Table 2. Gill net catch rates (fish/lift) of walleye by age collected during fall evaluations at Cagle's Mill Reservoir, 1990 to 2006.

<u>Year</u>	<u>Age</u>				
	<u>YOY</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4 and older</u>
1990	1.8	3.6	--	0.7	--
1991	0.7	0.2	0.2	--	--
1993	1.1	3.0	0.1	0.3	0.2
1994	0.6	7.4	0.7	--	0.2
1996	9.5	10.2	0.9	0.7	--
1998	0.3	1.9	3.7	0.8	0.3
1999	0.4	3.4	0.4	0.5	0.5
2000	0.3	0.4	0.4	0.2	--

Walleye Age-length Key															
Length group (in)	Total # number	Sub- sample	Age												
			1	2	3	4	5	6	7	8	9	10	11	12	13
4.5															
5.0															
5.5															
6.0															
6.5															
7.0															
7.5															
8.0															
8.5															
9.0															
9.5															
10.0															
10.5															
11.0															
11.5															
12.0															
12.5															
13.0															
13.5	1	1		1											
14.0															
14.5	1	1	1												
15.0	2	2	1	1											
15.5															
16.0	1	1	1												
16.5															
17.0															
17.5	1	1			1										
18.0															
18.5	3	3		1	2										
19.0	1	1			1										
19.5	1	1			1										
20.0															
20.5															
21.0	2	2				2									
21.5	1	1				1									
22.0	1	1			1										
22.5															
23.0															
23.5															
24.0															
24.5															
25.0	1	1					1								
25.5															
26.0	1	1						1							
26.5															
27.0															
27.5															
28.0	1	1								1					
Total	18	18	3	3	6	3	1	1	0	1	0	0	0	0	0